ABSTRACT OF THE DISCLOSURE

A surface acoustic wave device includes a quartz substrate, a piezoelectric thin film disposed on the quartz substrate and an interdigital electrode in contact with the piezoelectric thin film. The quartz substrate has an angle ϕ at the Euler angle (0, ϕ, θ) which is selected such that the quartz substrate has a negative temperature coefficient of delay at a predetermined propagation direction θ. The piezoelectric thin film has a positive temperature coefficient of delay, a thickness which is selected such that a fundamental mode of a leaky surface acoustic wave is excited on the quartz substrate, and the surface acoustic wave device operates using the fundamental mode of the leaky surface acoustic wave. It is preferable that the surface acoustic wave device has a quartz substrate with a Euler angle (0, 119° - 138°, 85° - 95°) and the normalized thickness of the piezoelectric thin film within the range of about 0.01 to about 0.15.